

Fig. 1a

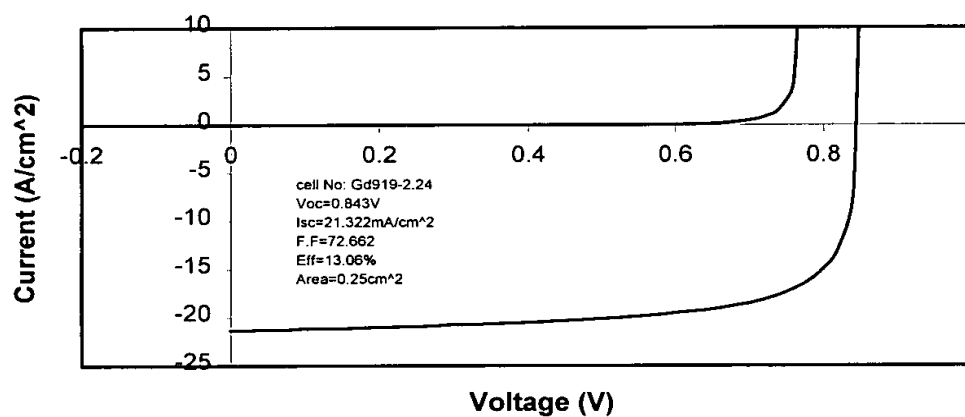


Fig. 4a

Sample	t_1 (min)	t_2 (min)	V_{oc}	J_{sc}	FF	η
No	140C	70C	(V)	(mA/cm ²)	(%)	(%)
GD904	3	0	0.856	20.6	68.6	12.1
GD907	0	3	0.856	20.7	65.9	11.7
GD908	0.5	2	0.858	21.0	66.9	12.1
GD919	1	2	0.847	21.5	70.1	12.8

Fig. 5a

+

I-V curve of solar cells with p-layer deposit at 70 C

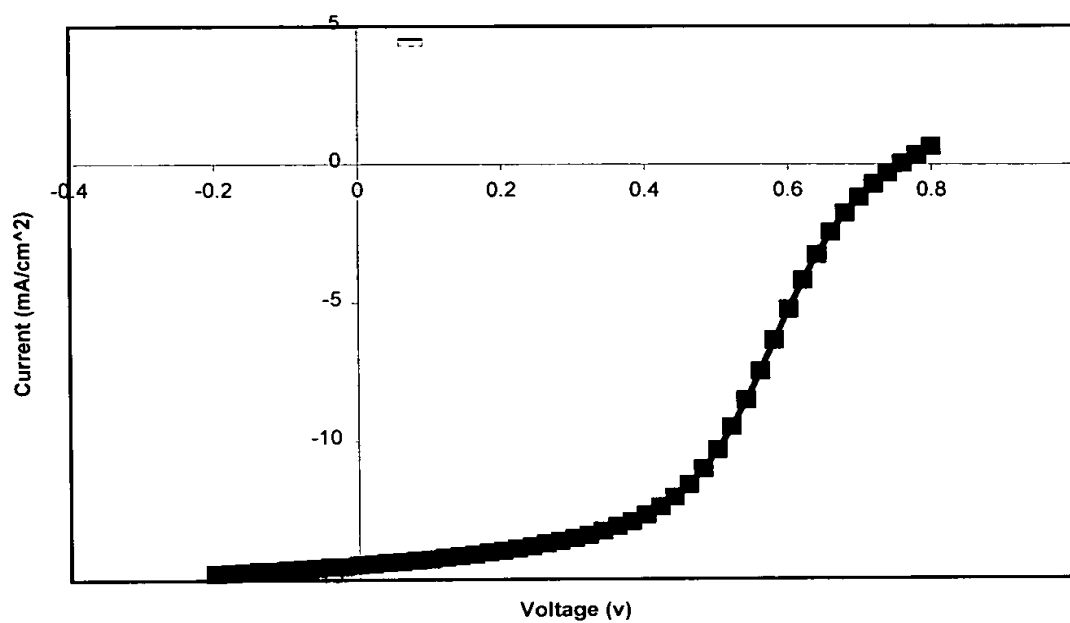


Fig. 2a

I-V curve of solar cells with p-layer deposit at 140 C

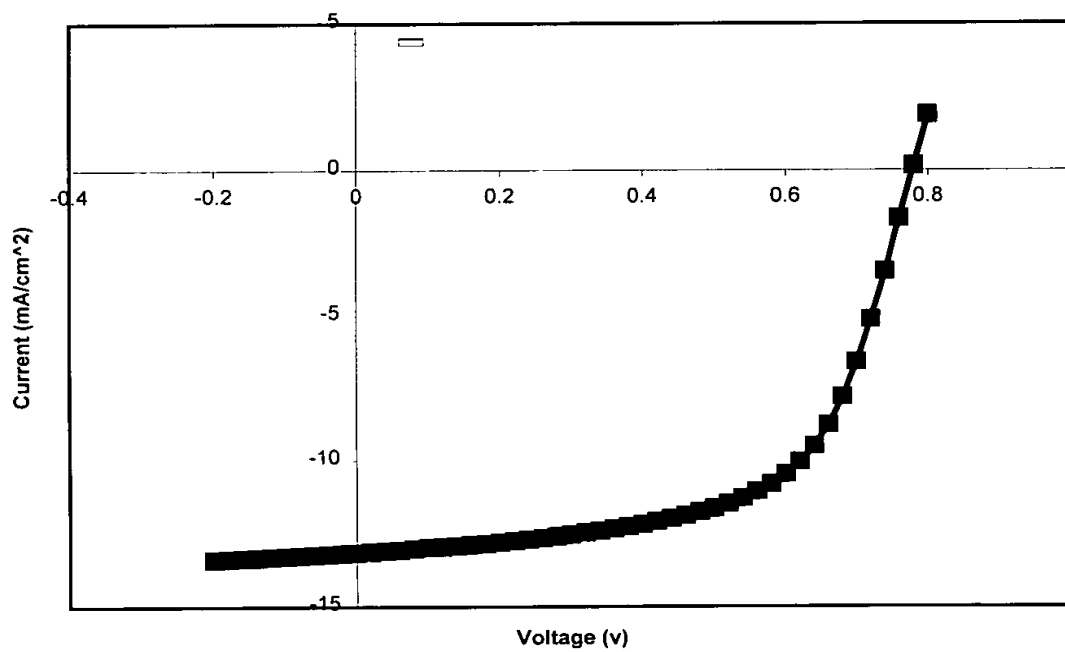


Fig. 3a

+

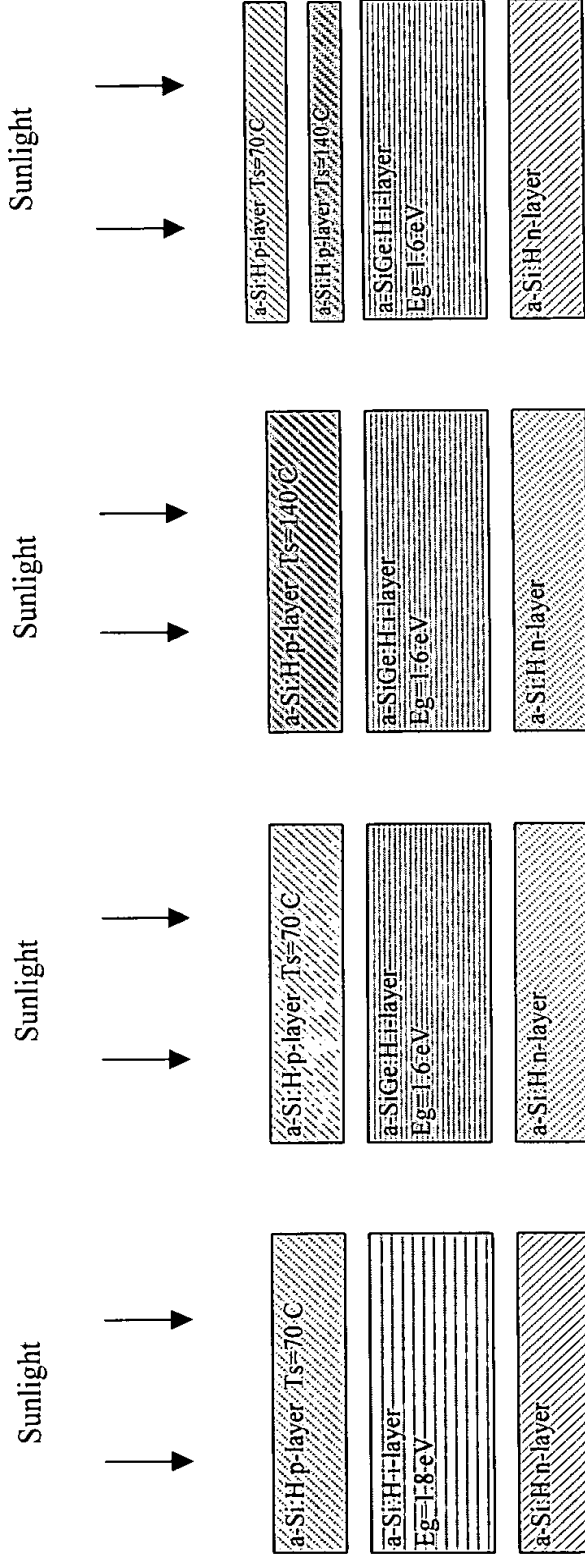


Fig. 4b

Fig. 3b

Fig. 2b

Fig. 1b

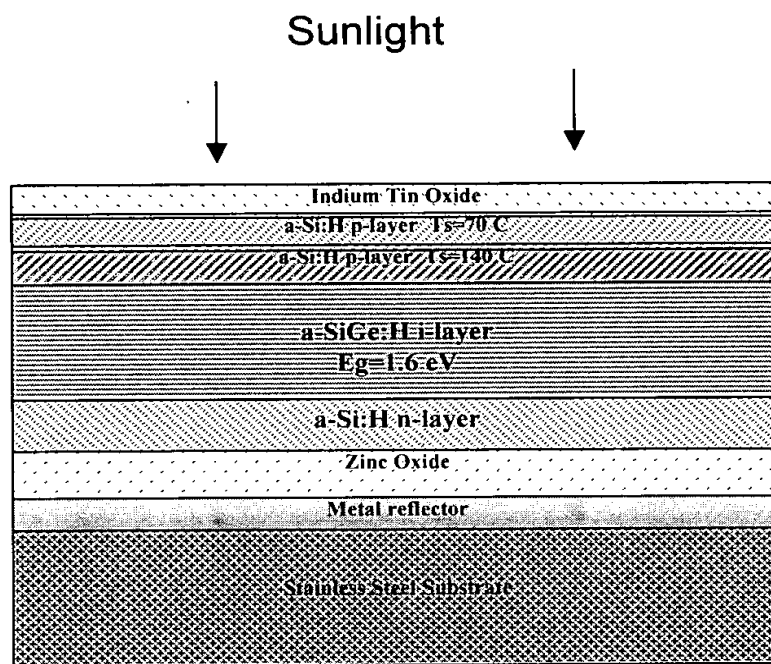


Fig. 5b

Deposition Conditions for GD904, GD907, GD908, GD919

	n-layer						i-layer						p-layer								
	Pressure (Torr)	RF power (Watt)	Temp (C)	SiH4 (sccm)	PH3 (sccm)	H2 (sccm)	time (min)	Pressure (Torr)	RF power (Watt)	Temp (C)	Si2H6 (sccm)	GeH4 (sccm)	H2 (sccm)	time (min)	Pressure (Torr)	RF power (Watt)	Temp (C)	SiH4 (sccm)	BF3 (sccm)	H2 (sccm)	time (min)
GD904	0.5	3	300	2.5	0.5	50	0.16	0.6	3.5	300	2		100	2.5	2	100	140			100	1
				2.5	0.125	50	2.5				2	0.55	100	60				0.3	0.1	100	3
											2		100	5				0.3	1	100	0.16
GD907	0.5	3	300	2.5	0.5	50	0.16	0.6	3.5	300	2		100	2.5	2	100	140			100	1
				2.5	0.125	50	2.5				2	0.55	100	40	2	100	70	0.3	0.1	100	3
											2		100	5	2	100	70	0.3	1	100	0.16
GD908	0.5	3	300	2.5	0.5	50	0.16	0.6	3.5	300	2		100	2.5	2	100	140			100	1
				2.5	0.125	50	2.5				2	0.55	100	60	2	100	140	0.3	0.1	100	0.5
											2		100	5	2	100	70	0.3	0.1	100	2
															2	100	70	0.3	1	100	0.16
GD919	0.5	3	300	2.5	0.5	50	0.16	0.6	3.5	300	2		100	2.5	2	100	140			100	1
				2.5	0.125	50	2.5				2	0.55	100	60	2	100	140	0.3	0.1	100	1
											2		100	5	2	100	70	0.3	0.1	100	2
															2	100	70	0.3	1	100	0.16

Fig. 5c

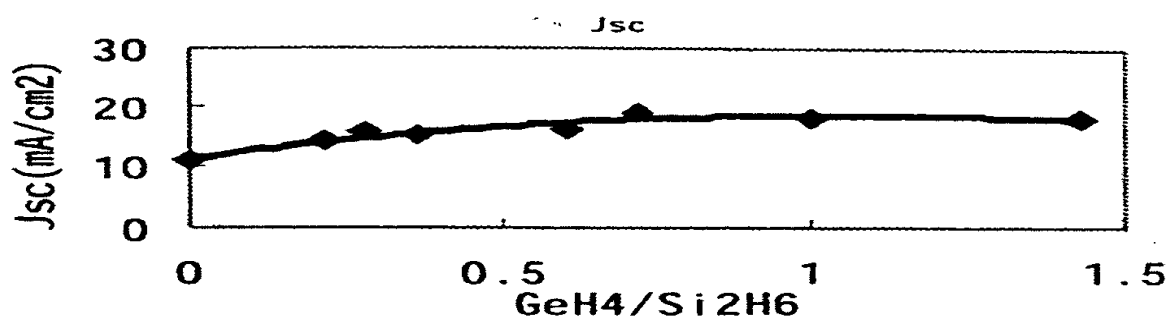


Fig. 6a

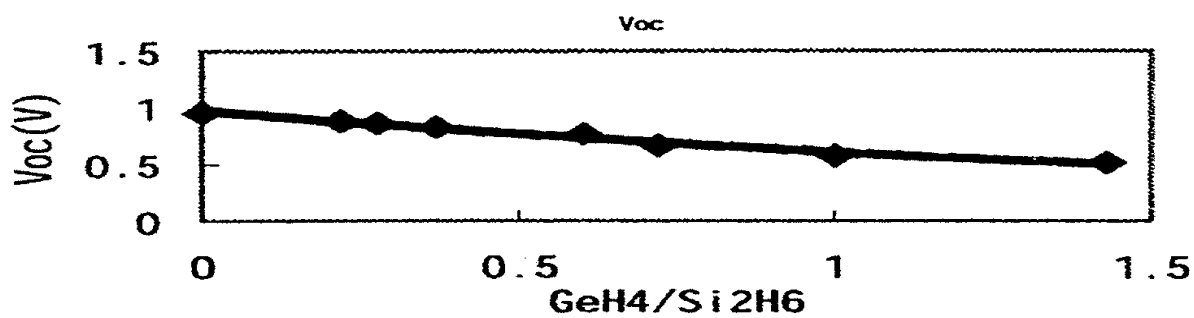


Fig. 6b

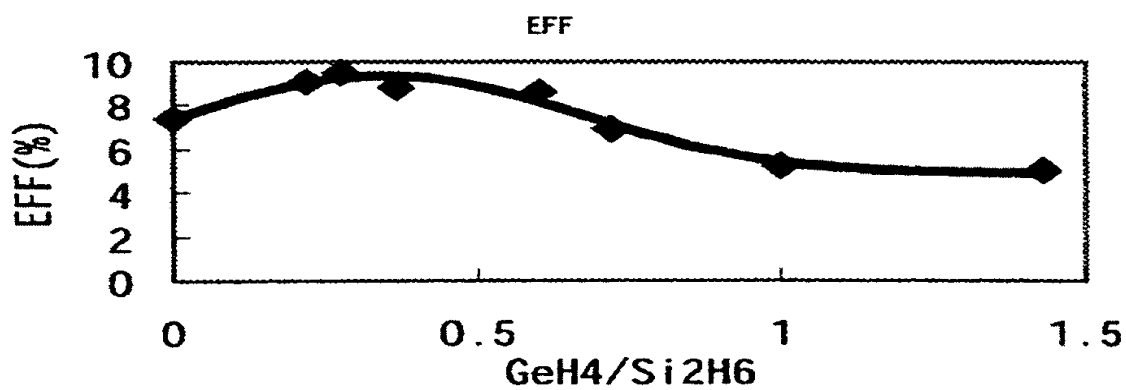


Fig. 6c